

# Service Manual

**NATIONAL**

**TAPE RECORDER**

**PANASONIC**

## 4-TRACK STEREO TAPE DECK WITH 3-MOTORS, 4-HEAD AND AUTOMATIC REVERSE



MODEL **RS-715US**

### SPECIFICATIONS

Power Source:	100~240 volts 50/60 Hz	Fast Forward Time:	Less than 60 seconds for 7" standard tape (1200 ft)
Power Consumption:	110 W	Rewind Time:	Less than 60 seconds for 7" standard tape (1200 ft)
Motors:	8/4 poles dual speed hysteresis synchronous motor (1) 4-pole induction motor (2)	Frequency Response:	20~25,000 Hz (30~22,000 Hz ± 3 dB) at 7-1/2 ips
Transistors:	2SC644(8) 2SC828(8) 2SC881(2) 2SD261(2) 2SC1096(1) 2SC644(6)	Wow & Flutter:	Less than 0.095% at 7-1/2 ips
Diodes:	OA90(4) 1S8150(1) FR2(8)	Inputs:	2 "MIC" (High) -65 dB (0.56 mV)/5 ~20 K $\Omega$ (Low) -73 dB (0.22 mV)/ 600 $\Omega$ ~5 K $\Omega$
Rectifiers:	KC2dp22/1(1)	Outputs:	2 "LINE IN" -30 dB (30 mV)/200 K $\Omega$ 2 "LINE OUT" -6 dB (500 mV)/50 K $\Omega$ "HEADPHONE" 8 $\Omega$
Track System:	4 tracks, 2 channels stereo recording and playback	Record/Playback Connector:	DIN
Recording System:	AC bias 180 kHz	Dimensions:	17" (W) × 20-3/4" (H) × 9" (D)
Erasing System:	AC erase	Weight:	52-7/8 lbs.
Tape Speeds:	2 speeds, 7-1/2 ips (19 cm/s) and 3-3/4 ips (9.5 cm/s)		
Maximum Reel Size:	7" reel		
Signal-to-noise Ratio:	53 dB or more		

These specifications are subject to change in order to accommodate improvements in design.

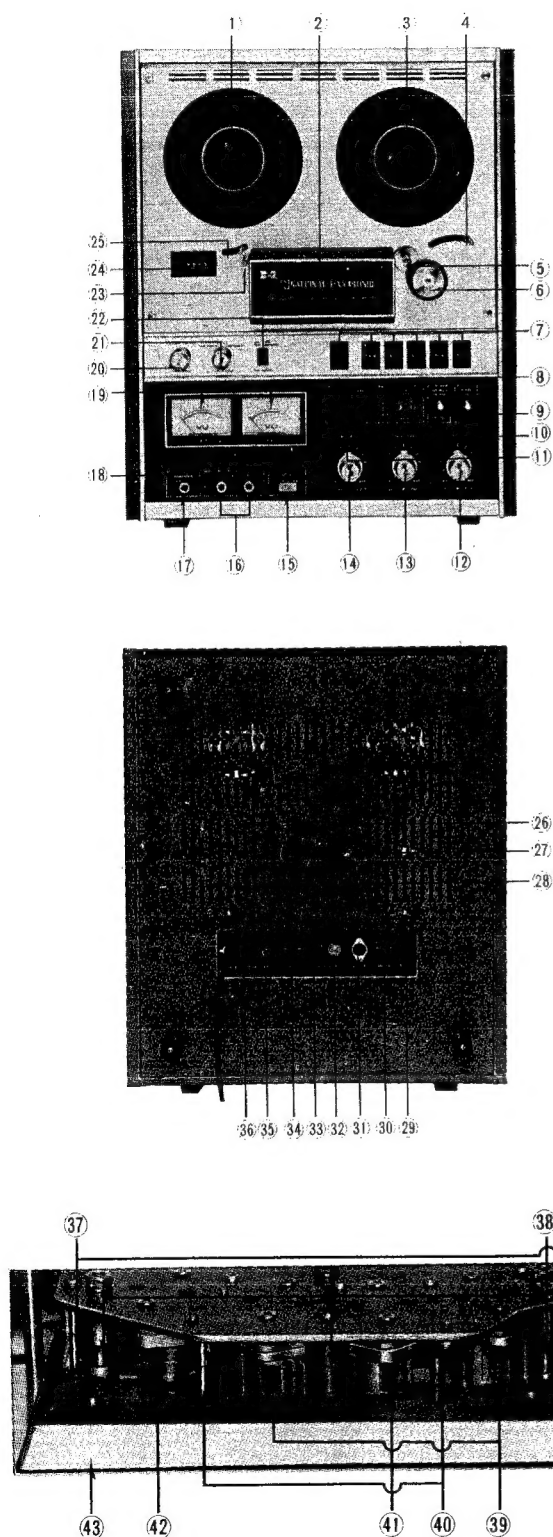
**MATSUSHITA ELECTRIC**

MATSUSHITA ELECTRIC TRADING CO., LTD.

P. O. Box 288 Central, Osaka, Japan



# LOCATION OF PARTS

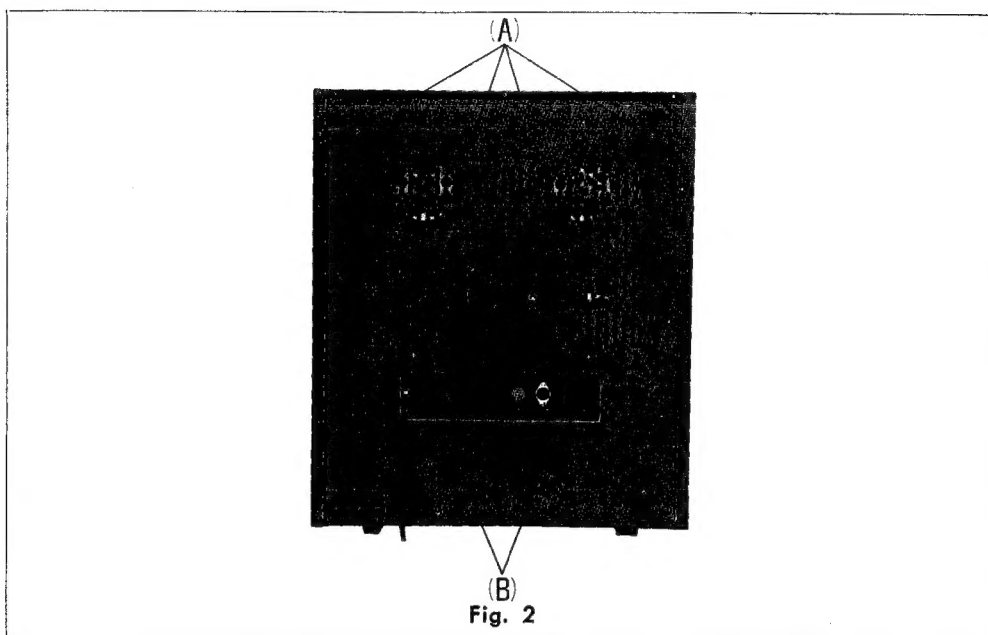


- ① Supply reel table
- ② Head assembly housing
- ③ Takeup reel table
- ④ Right tension arm
- ⑤ Capstan
- ⑥ Pressure roller
- ⑦ Operation buttons
- ⑧ Tape/source selection knobs
- ⑨ Power source switch
- ⑩ Tape selector knob
- ⑪ Record selector buttons
- ⑫ Output level control knobs
- ⑬ Line input level control knobs
- ⑭ Microphone input level control knobs
- ⑮ Record button
- ⑯ Microphone jacks
- ⑰ Headphones jack
- ⑱ Level meter zero-point adjustment screws
- ⑲ Level meters
- ⑳ Tape speed selector
- ㉑ Automatic reverse selector
- ㉒ Tape tension selection button
- ㉓ Gide pin
- ㉔ Tape counter and reset button
- ㉕ Left tension arm
- ㉖ Power frequency selector
- ㉗ Power voltage selection switch
- ㉘ Remote control jack
- ㉙ MIC impedance selector switch
- ㉚ Line in jacks
- ㉛ Recording/playback connector
- ㉜ Sound-on-sound level adjustment control
- ㉝ Sound-on-sound switch
- ㉞ Line out jack
- ㉟ Fuse holder (for 2A fuse)
- ㊱ Power outlet
- ㊲ Sensing poles
- ㊳ Tape guides
- ㊴ Playback head
- ㊵ Tape shifter
- ㊶ Record head
- ㊷ Erase head
- ㊸ Front cover

Fig. 1

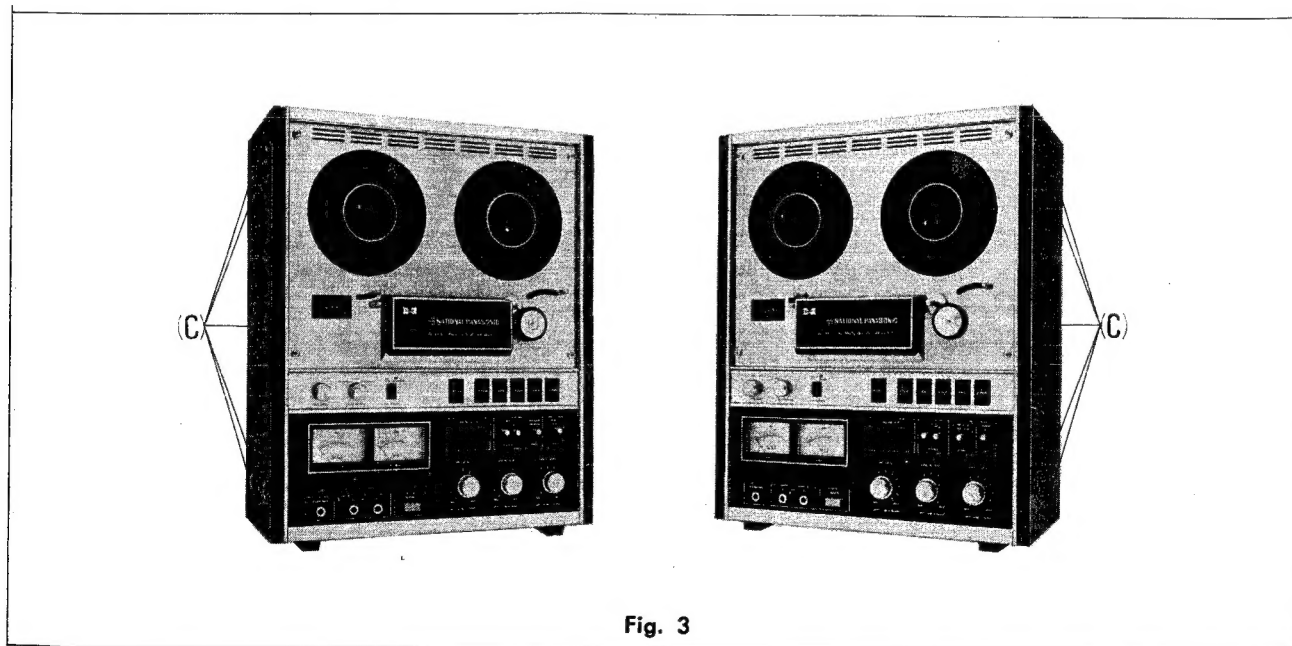
# DISASSEMBLY INSTRUCTIONS

## HOW TO REMOVE BACK BOARD



1. Remove 4 screws in the rubber feet (A) and 2 back board holding screws (B).
2. Then back board can be removed.

## HOW TO REMOVE BODY CASE

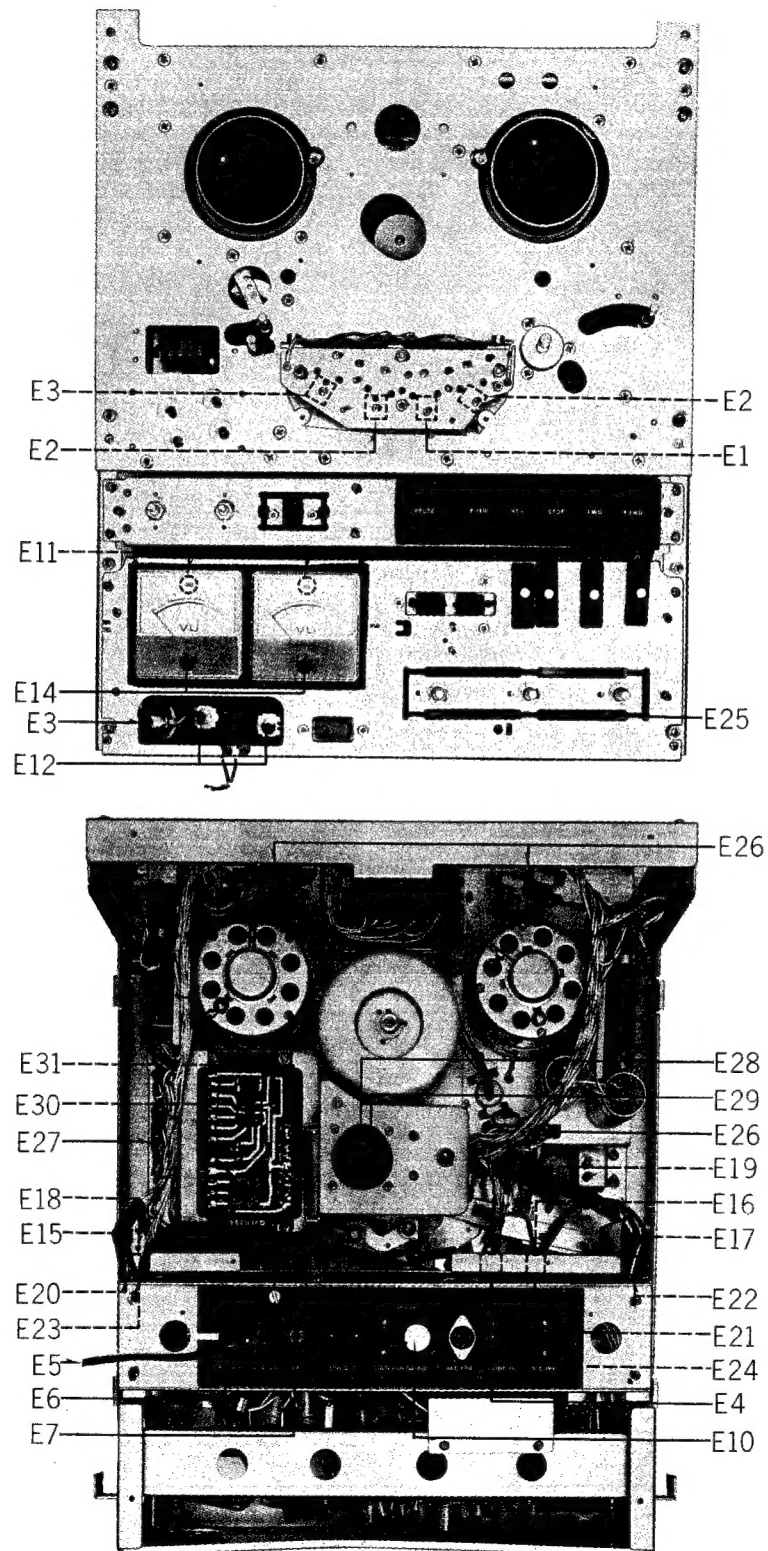


1. Remove 10 body case holding screws (C).
2. Place the set with its panel side up and lift body case (panel side) slowly. Then body case can be removed.

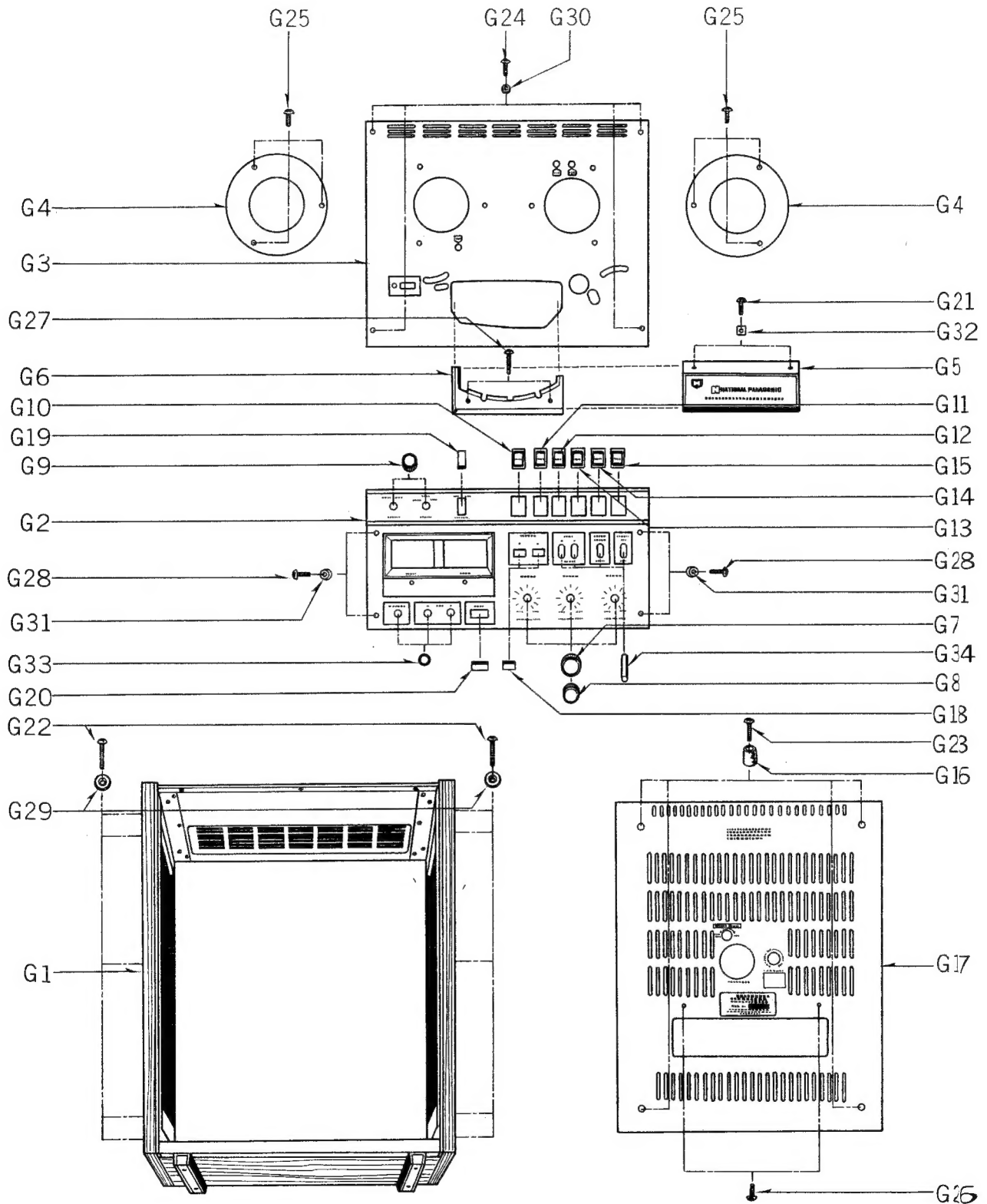
## STANDARD VALUE TO BE ADJUSTED

ITEM	VALUE	PARTS TO BE ADJUSTED	REMARKS
Recording bias current.	$1.6^{+0.6}_{-0.2}$ mA (when 19 cm/s of tape speed).	VR17 (CH1) VR18 (CH2)	Set S3 to normal position.
Input level.	MIC $-73 \pm 3$ dB LINE $-30 \pm 2$ dB DIN $-38 \pm 2$ dB	VR5 (CH1) VR6 (CH2)	To obtain $160 \mu\text{A}$ of recording signal current. Set S1 to low position.
Bias oscillation frequency.	$180 \pm 10$ kHz	_____	_____
Erase current.	38~50 mA	_____	_____
Takeup tension.	45~50 gr-cm	Terminal A of VR23 (Forward) Terminal A of VR22 (Reverse)	Change the position of terminal A of VR22 or VR23.
Back tension.	25~28 gr-cm (for Left) 29~33 gr-cm (for Right)	Terminal B of VR22 (Left) Terminal B of VR23 (Right)	Set S23 to THIN position. Change the position of terminal B of VR22 or VR23.
Pressure of pressure roller.	$2.8 \pm 0.1$ kg	Setting position of pressure arm rod (M104) on plunger rod (M108).	Loosen 4 nuts and change the setting position. After complete adjustment, lock the 4 nuts tightly.
Brake tension.	$120 \pm 29$ gr	Brake spring (shown by No. M50 in exploded views).	By change of hanging position (hole) on brake arms (shown by No. M49 and M51 in exploded views).

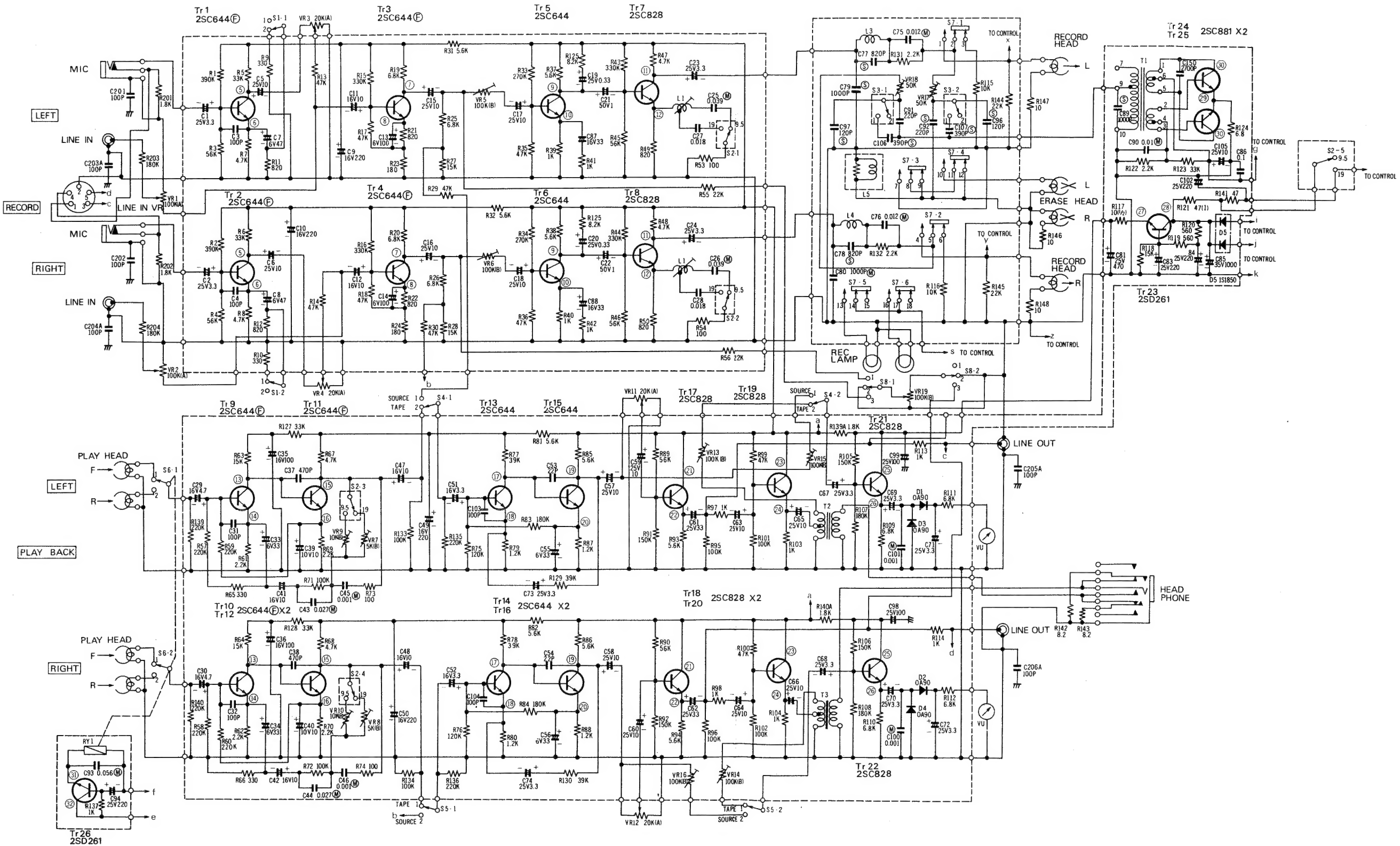
# ELECTRICAL PARTS LOCATION



# CABINET PARTS



SCHEMATIC DIAGRAM MODEL RS-715US

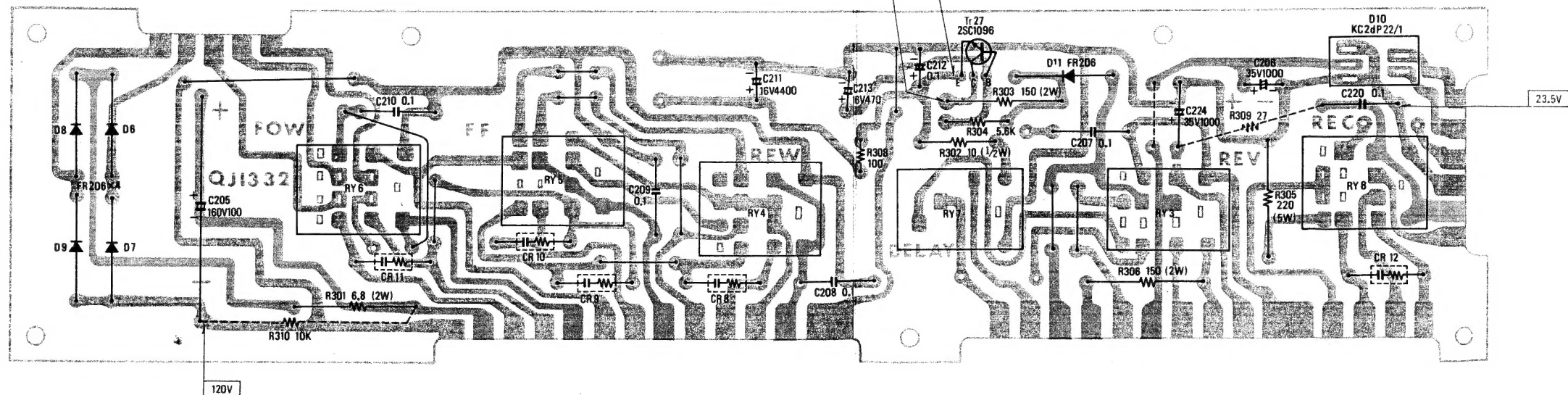




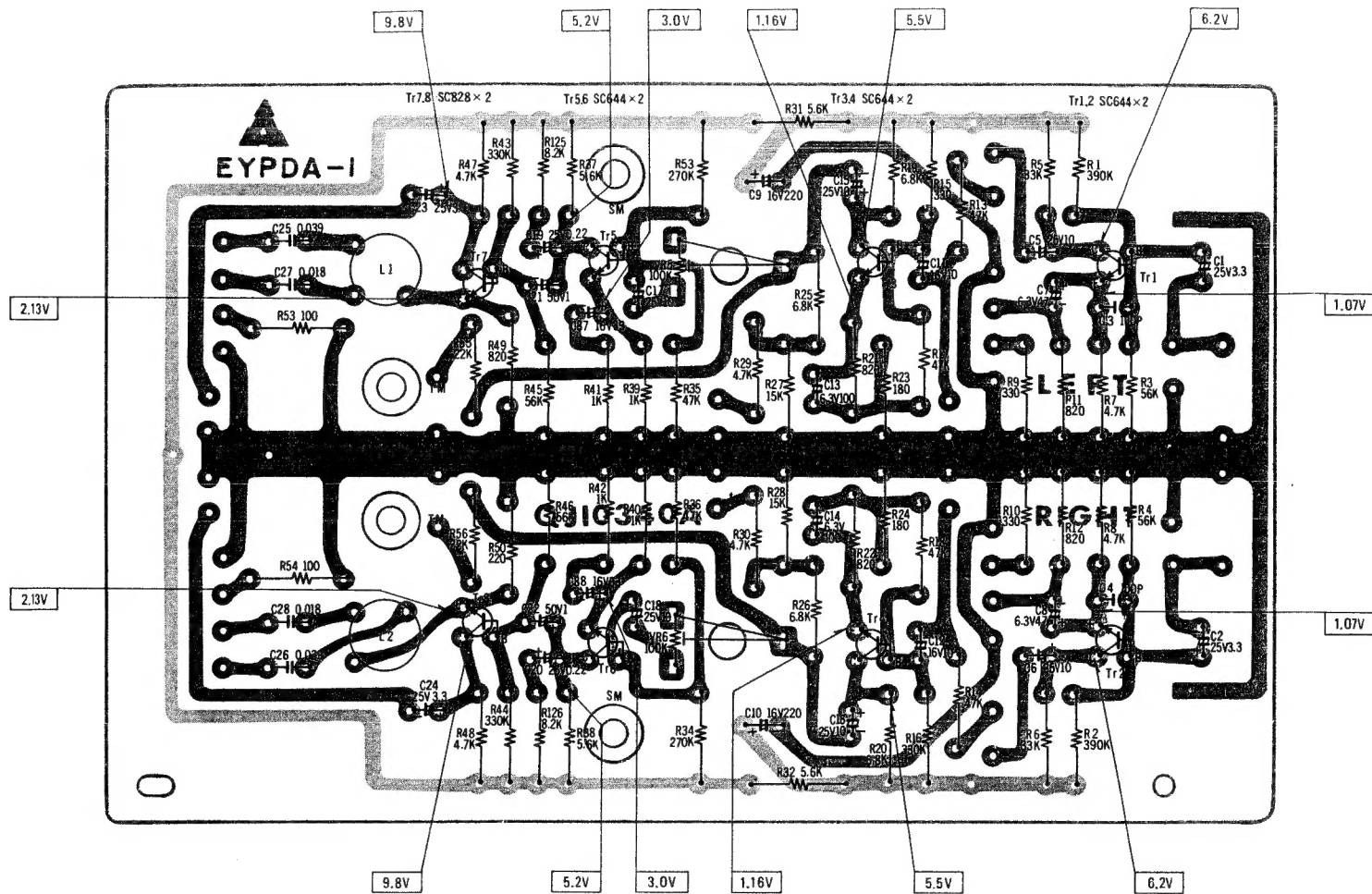




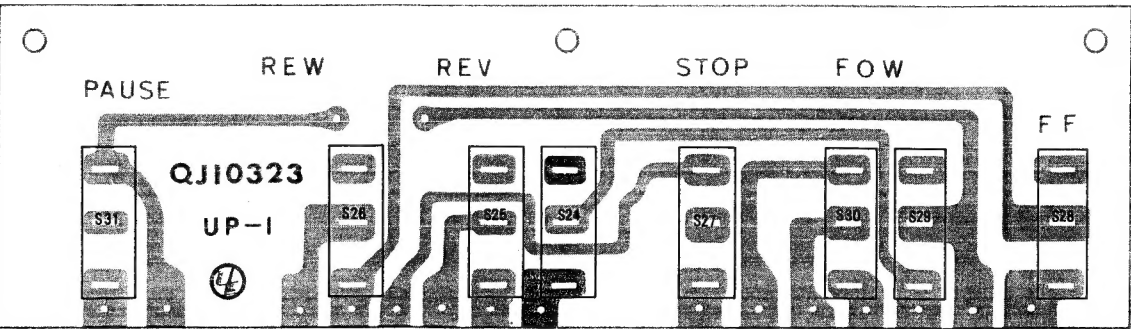
## PLAYBACK CIRCUIT BOARD



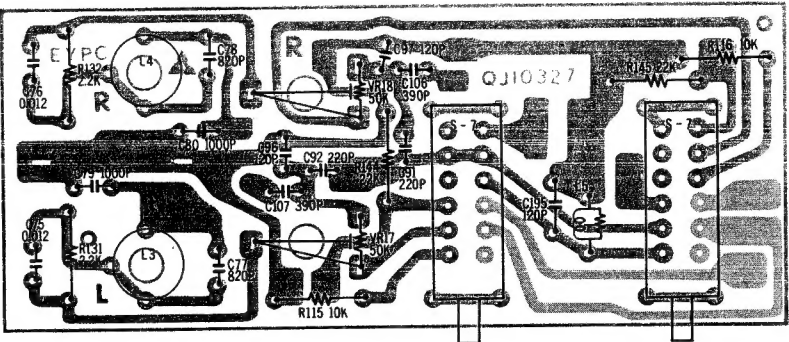
RECORD CIRCUIT BOARD



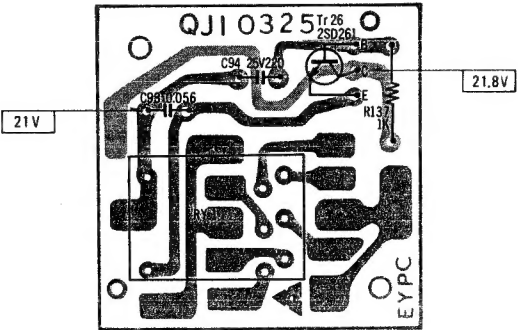
OPERATION CIRCUIT BOARD



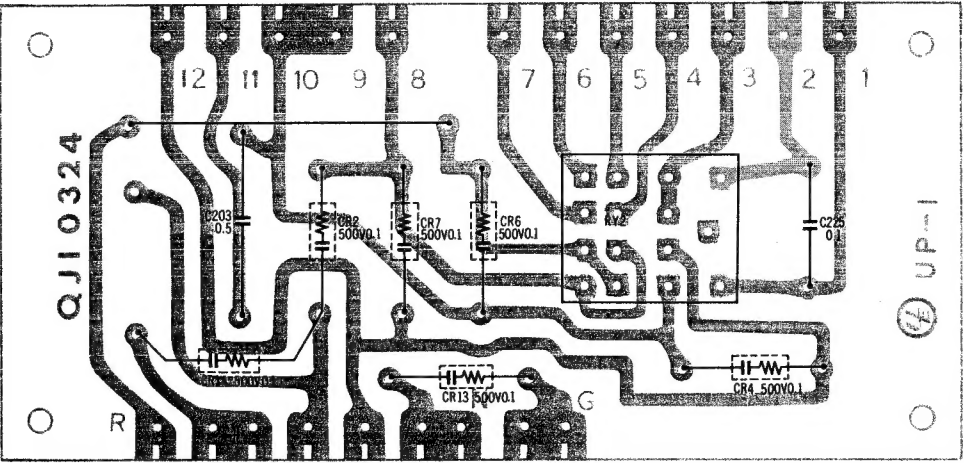
RECORD/PLAYBACK SELECT CIRCUIT BOARD



HEAD SELECT CIRCUIT BOARD

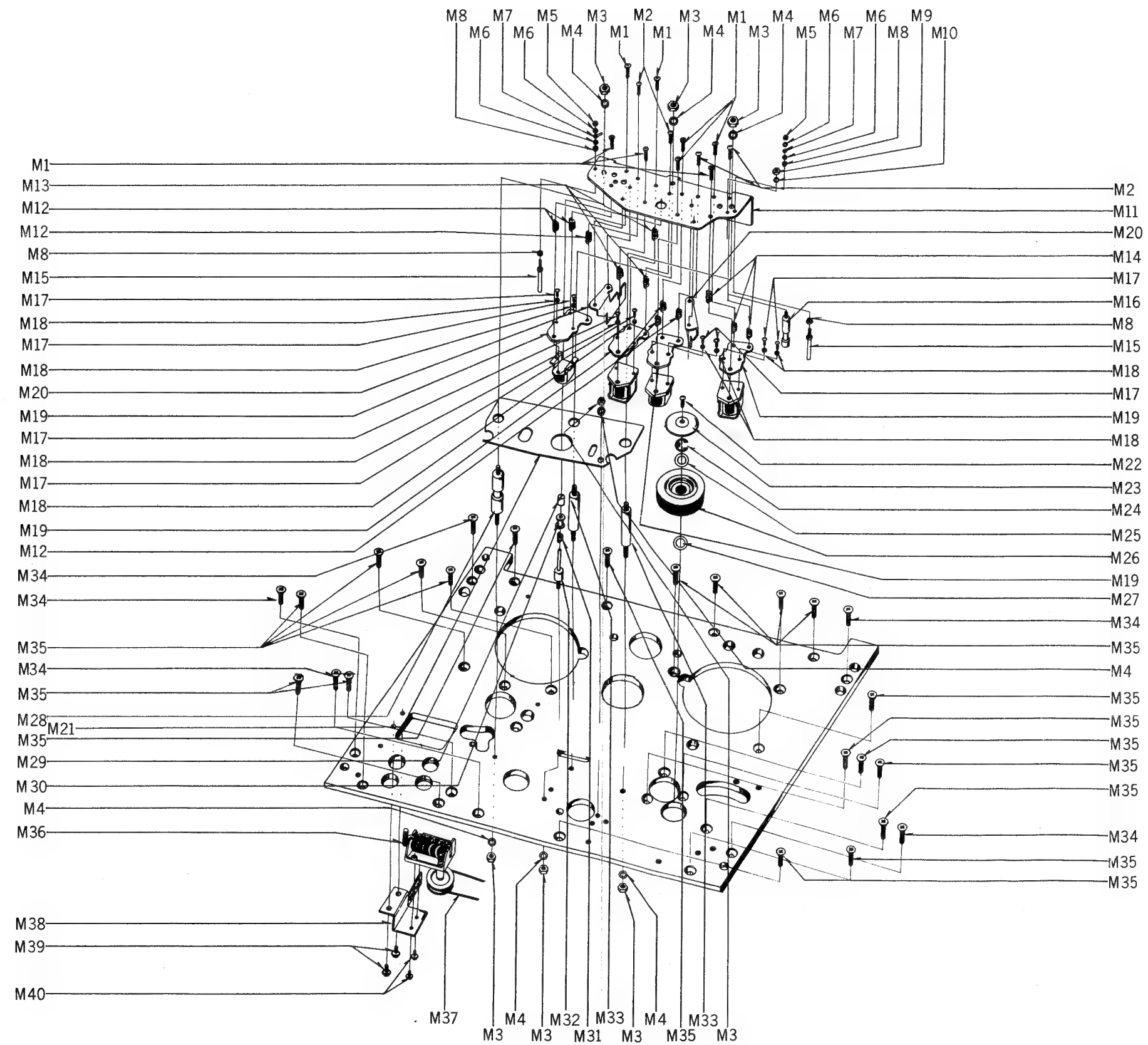


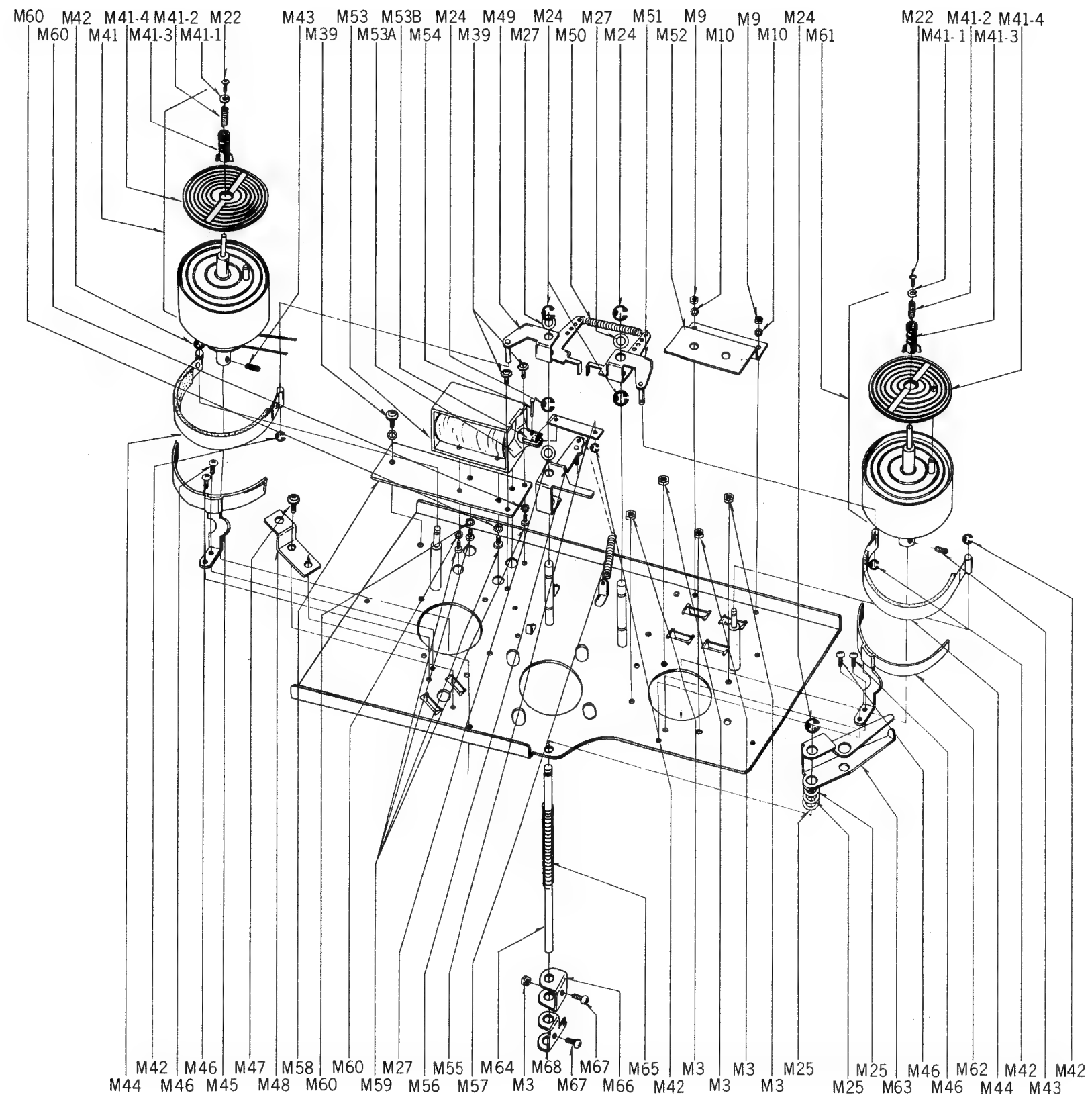
MOTOR SELECT CIRCUIT BOARD



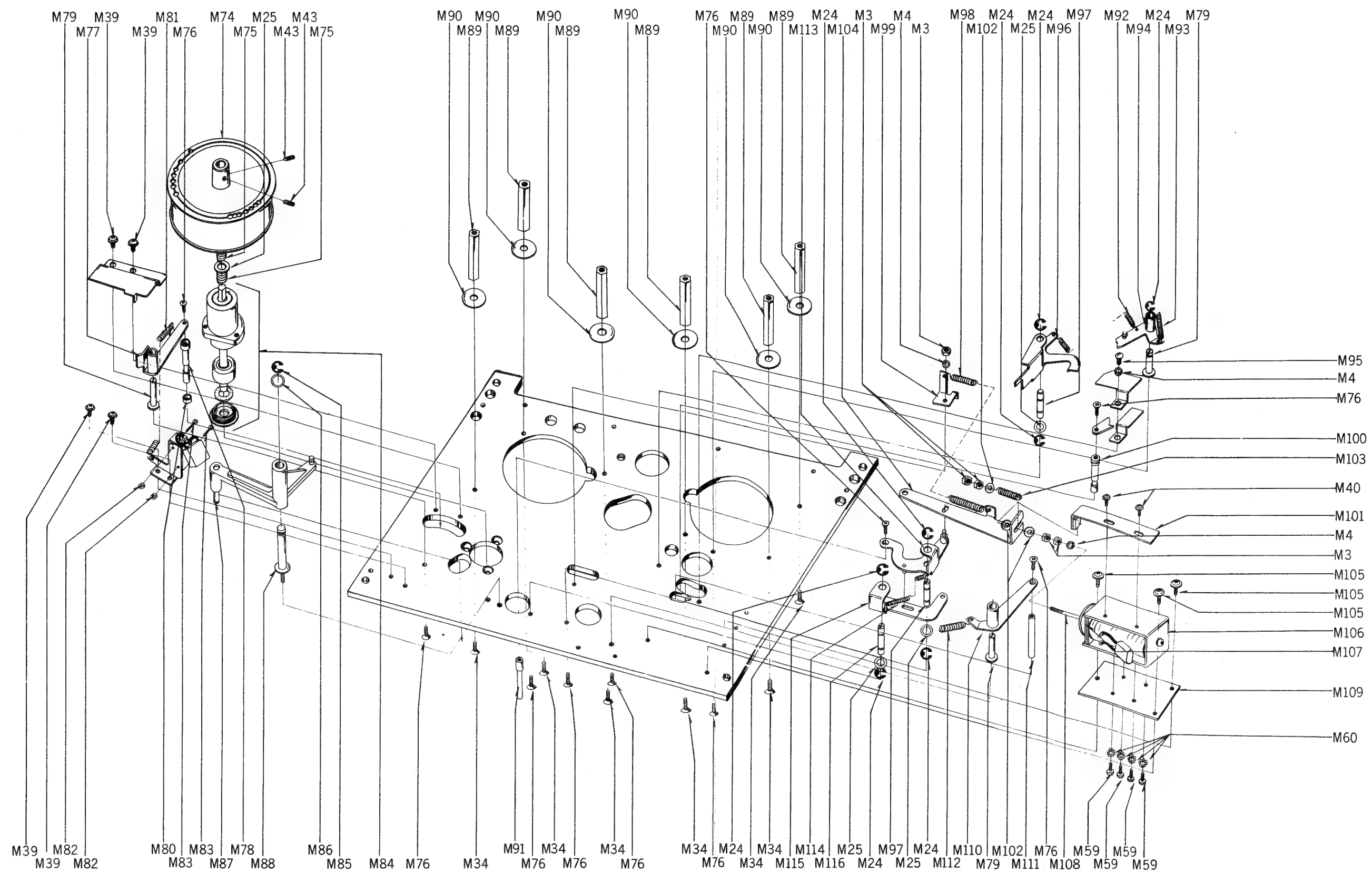
**NOTE:**  
The circuit shown in red on the conductor side is +B circuit.  
Values indicated in   are DC voltages between the chassis and electrical parts.

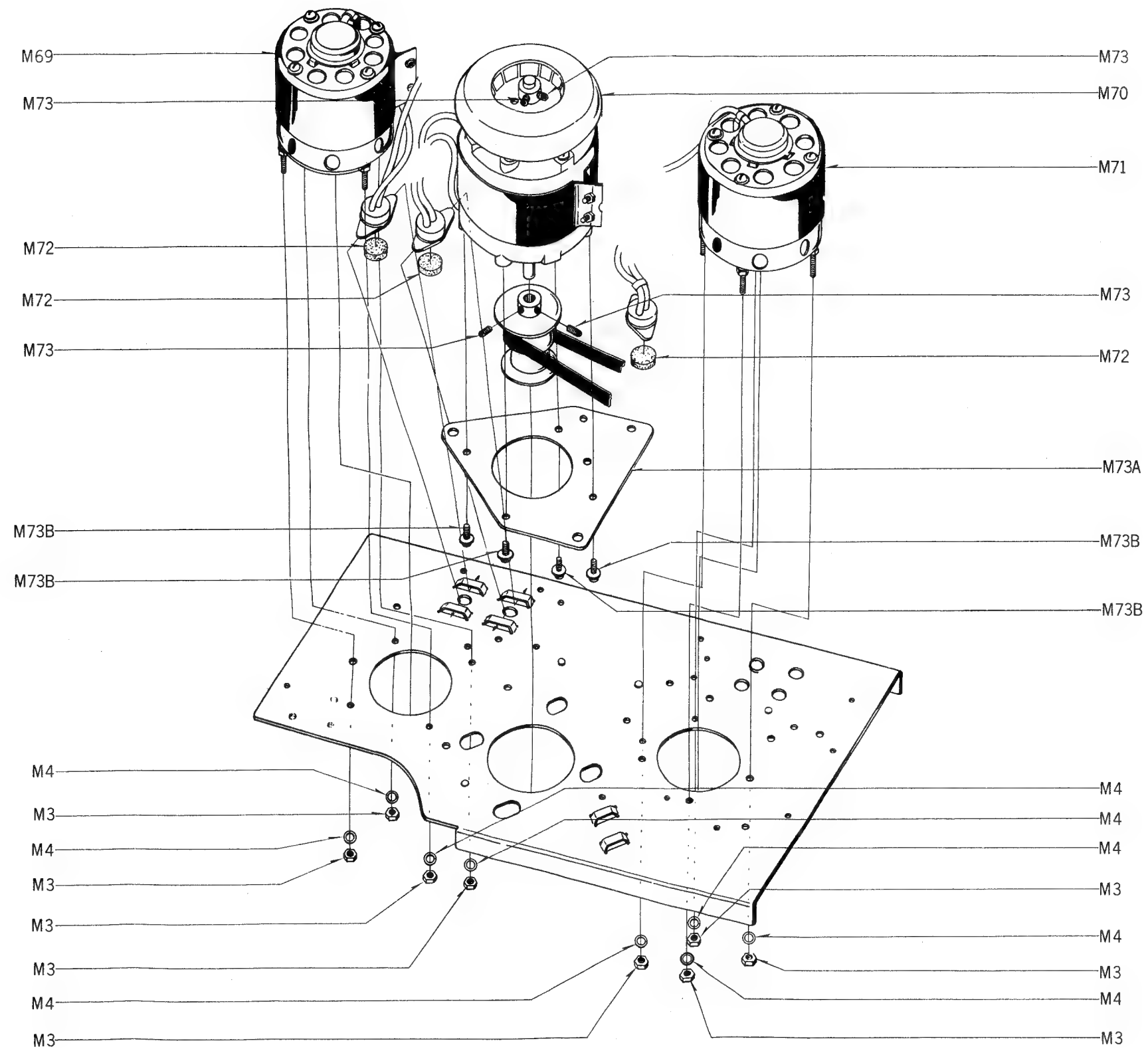
# EXPLODED VIEWS









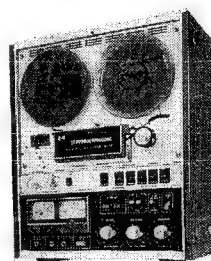


# REPLACEMENT PARTS LIST

## MODEL RS-715US NATIONAL PANASONIC

### NOTES:

1. Be sure to make your orders of Replacement Parts according to this List.
2. "X" marked in "Rank" Column indicates that the parts are not supplyable.
3. "A, B and C" marked in "Rank" Column indicates the recommended stock of replacement parts.  
Refer to the recommended stock table on Last Page.
4. "★" marked in "Remarks" Column indicates the New Parts.
5. "ISO" marked in "Remarks" Column indicates the ISO Screw or Nut.



















RS-715US



Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
		<b><u>MECHANICAL PARTS</u></b>					
C	M1	Screw $\oplus 2.6 \times 10$	XSC26+10	8			COMMON
C	M2	Screw $\oplus 2.6 \times 10$	XSN26+10	4			"
C	M3	Nut 4 $\phi$	XNG4ES	25			" ISO
C	M4	Spring Washer 4 $\phi$	XWA4B	18			"
C	M5	Nut 2 $\phi$	XNG2E	2			"
C	M6	Spring Washer	XWA2B	2			COMMON
C	M7	Wire Holder	QTD1163	2			★
C	M8	Insulate Collar	QBJ1325	4			RS-716US
C	M9	Nut 3 $\phi$	XNG3ES	3			COMMON ISO
C	M10	Spring Washer 3 $\phi$	XWA3B	3			"
X	M11	Head Base Plate	QMF1451S	1			★ ISO
C	M12	Head Spring (Erase, Rec.)	QBC1181	6			★
C	M13	Head Spring (R-Playback)	QBC1180	3			★
C	M14	Head Spring (F-Playback)	QBC1173	3			★
C	M15	Tape Guide-1	QAG1172	2			★
C	M16	Tape Guide-2	QAG1170S	1			★ ISO
C	M17	Screw $\oplus 2 \times 4$	XSN2+4	8			COMMON
C	M18	Flate Washer 2 $\phi$	XWG2	8			"
X	M19	Head Plate	QMZ1071	4			★
C	M20	Tape Guide Plate	QAG1169	2			★



**RS-715US**

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
×	M21	Shield Plate	QMK1294	1			★
C	M22	Screw $\oplus 3 \times 6$	XSC3+6S	3			COMMON 
C	M23	Pressure Roller Cap	QMQ1074	1			★
C	M24	Stop Ring E5 $\phi$	XUC5FT	13			COMMON
C	M25	Fiber Washer 6.2 $\times$ 11 $\times$ 0.5 t	QBK7003	8			"
A	M26	Pressure Roller	QDP1107	1			RS-1000S
C	M27	Fiber Washer 6.2 $\times$ 11 $\times$ 0.25 t	QBK7056	4			COMMON
×	M28	Head Base Plate Shaft-1	QMP1327S	1			★ 
C	M29	Screw Boss	QMP1329	1			★
C	M30	Tape Guide	QAG1176	1			★
C	M31	Tape Guide Spring	QBC1138	1			RS-768US
C	M32	Tape Guide-3	QAG1171S	1			★ 
×	M33	Head Base Plate Shaft-2	QMP1328S	2			★ 
C	M34	Screw $\oplus 4 \times 16$	XSS4+16S	11			COMMON 
C	M35	Screw $\oplus 4 \times 10$	XSS4+10S	19			" 
A	M36	Tape Counter Assembly	QDC0023S	1			★ 
A	M37	Tape Counter Belt	QDB0076	1			★
×	M38	Counter Angle	QMA1708	1			★
C	M39	Sems Screw $\oplus 4 \times 6$	XYN4+C6S	9			COMMON 
C	M40	Sems Screw $\oplus 3 \times 6$	XYN3+C6S	4			" 
A	M41	Reel Table-L Assembly	QXP0382S	1			★ 
C	M41-1	Flat Washer 3 $\phi$	XWG3	2			COMMON
C	M41-2	Reel Clump Spring	QBC1176	2			★
C	M41-3	Reel Clump	QBJ3218	2			★
C	M41-4	Reel Table Sheet	QBG1302	2			★
C	M42	Stop Ring E3 $\phi$	XUC3FT	5			COMMON
C	M43	Screw	XS4+5S (or XXE4D6S)	4			" 
B	M44	Brake Band Assembly	QUV1028	2			" 
C	M45	Brake Band Guide-L Assembly	QMA1753	1			★
C	M46	Tapping Screw $\oplus 3 \times 8$	XTN3+8	4			★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>C</b>	M47	Sems Screw $\oplus 3 \times 8$	XYN3+C8S	1			COMMON 
<b>x</b>	M48	Oil Cap Angle-1	QMA1707	1			★
<b>B</b>	M49	Brake Arm-L Assembly	QXA0131	1			★
<b>C</b>	M50	Brake Spring	QBT1435M	1			★
<b>B</b>	M51	Brake Arm-R Assembly	QXA0130	1			★
<b>x</b>	M52	Oil Cap Angle-2	QMA1762	1			★
<b>B</b>	M53	Plunger Assembly	QME0110S	1			★ 
<b>C</b>	M53A	Plunger Spring	QBP1397	1			★
<b>C</b>	M53B	Plunger Connector	QMQ1068S	1			★ 
<b>C</b>	M54	Cut Pin 6.6 $\phi$	XPA16X15	1			★
<b>C</b>	M55	Brake Rod	QMR1068	1			★
<b>B</b>	M56	Brake Lever Assembly	QXL0531	1			★
<b>C</b>	M57	Brake Lever Spring	QBT1236	1			★
<b>x</b>	M58	Plunger Holding Plate-1	QMF1448	1			★
<b>C</b>	M59	Screw $\oplus 3 \times 6$	XSN3+6S	7			COMMON 
<b>C</b>	M60	Lock Washer	XWC3B	7			COMMON
<b>A</b>	M61	Reel Table-R Assembly	QXP0339S	1			★ 
<b>B</b>	M62	Brake Band Guide-R Assembly	QMA1660	1			★
<b>x</b>	M63	Belt Shifter	QAS1044	1			★
<b>x</b>	M64	Connection Rod	QMR1175	1			★
<b>C</b>	M65	Frequency Select Rod Spring	QBC1182	1			★
<b>x</b>	M66	Frequency Select Lever	QML2085S	1			★ 
<b>C</b>	M67	Screw $\oplus 4 \times 10$	XSN4+10S	2			COMMON 
<b>x</b>	M68	Connection Lever	QML2093S	1			★ 
<b>B</b>	M69	Reel Motor-Right	4AC20G2LLS	1			★ 
<b>B</b>	M70	Capstan Motor	48KSC30A2S	1			★ 
<b>B</b>	M71	Reel Motor-Left	4AC20G2LRS	1			★ 
<b>C</b>	M72	Felt	QBF1026	3			★
<b>C</b>	M73	Screw	XXE4D6S	4			★ 
<b>x</b>	M73A	Motor Plate	QMF1512	1			★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>C</b>	M73B	Sems Screw $\oplus 4 \times 8$	XYN4+C8S	4			CoMMON 
<b>A</b>	M74	Flywheel	QDW1055S	1			★ 
<b>C</b>	M75	Flywheel Spring	QBC1084	2			★
<b>C</b>	M76	Screw $\oplus 3 \times 8$	XSS3+8S	9			COMMON 
<b>B</b>	M77	Tension Arm-R Assembly	QXA0133	1			★
<b>C</b>	M78	Tension Arm Pin-R	QMN1421	1			★
<b>C</b>	M79	Tension Arm Shaft	QMS2032S	3			★ 
<b>C</b>	M80	Shifter Stop Rubber	QBG1286	1			★
<b>C</b>	M81	Tension Arm Spring-L	QBT1322	1			RS-736US
<b>C</b>	M82	Nut 2.6 $\phi$	XNG26E	2			COMMON
<b>C</b>	M83	Screw $\oplus 2.6 \times 16$	XSN26+16	2			COMMON
<b>C</b>	M84	Capstan Assembly	QXQ0049	1			★
<b>C</b>	M85	Stop Ring E6 $\phi$	XUC6FT	1			COMMON
<b>C</b>	M86	Fiber Washer 8.2 $\times$ 12 $\times$ 0.5 t	QBK7049	1			”
<b>B</b>	M87	Pressure Roller Lever Assembly	QXA0134	1			★
<b>C</b>	M88	Pressure Roller Lever Shaft	QMS2088	1			★
×	M89	Lower Base Pole	QMP1324S	6			★ 
×	M90	Spacer	QMF1487	6			★
<b>C</b>	M91	Tape Shifter	QAG1045	1			★
<b>C</b>	M92	Tension Arm Spring	QBT1239	1			★
<b>C</b>	M93	Tension Arm Assistant Spring	QBT1290	1			★
<b>B</b>	M94	Tension Arm-L Assembly	QXA0132	1			★
<b>C</b>	M95	Screw $\oplus 4 \times 6$	XSN4+6S	1			COMMON 
<b>C</b>	M96	Tension Lock Lever	QML2286	1			★
<b>C</b>	M97	Shift Lever Shaft-1	QMS1928S	2			★ 
<b>C</b>	M98	Pressure Roller Release Spring	QBT1345	1			★
<b>C</b>	M99	Release Spring Hook	QMF1191	1			★
<b>C</b>	M100	Tension Arm Pin-L	QMN1423	1			★
×	M101	Plunger Stopper	QMA1301	1			★
<b>C</b>	M102	Flat Washer	XWG4	3			COMMON

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>B</b>	M103	Pressure Roller Spring	QBC1098	1			★
<b>C</b>	M104	Pressure Arm Rod	QMR1176	1			★
<b>C</b>	M105	Sems Screw $\Phi 4 \times 4$	XYN4+C4S	3			COMMON (ISO)
<b>B</b>	M106	Plunger	QME0110S (or QME0103S)	1			★ (ISO)
<b>C</b>	M107	Plunger Wapper	QMQ1102	1			★
<b>C</b>	M108	Plunger Rod	QMR1052S	1			★ (ISO)
×	M109	Plunger Hold Metal-2	QMF1483	1			★
×	M110	Guide Pole Lever Assembly	QXL0533	1			★
<b>C</b>	M111	Guide Pole	QMP1354S	1			★ (ISO)
<b>C</b>	M112	Guide Pole Lever Spring	QXJ0058	1			★
×	M113	Shift Lever-1 Assembly	QXL0532	1			★
<b>C</b>	M114	Shift Lever Spring	QBT1230	1			★
×	M115	Shift Lever-2	QML2090	1			★
<b>C</b>	M116	Shift Lever Shaft-2	QMS1929S	1			★ (ISO)
		<b><u>RESISTORS</u></b>					
<b>B</b>	R1, 2	Carbon Resistor 390 K $\Omega$ 1/4 W	ERD14TJ394	2			
<b>B</b>	R3, 4, 45, 46, 89, 90	" 56 K $\Omega$ 1/4 W	ERD14TJ563	6			
<b>B</b>	R5, 6, 123, 127, 128	" 33 K $\Omega$ 1/4 W	ERD14TJ333	5			
<b>B</b>	R7, 8, 47, 48, 67, 68	" 4.7 K $\Omega$ 1/4 W	ERD14TJ472	6			
<b>B</b>	R9, 10, 65, 66	" 330 $\Omega$ 1/4 W	ERD14TJ331	4			
<b>B</b>	R11, 12, 21, 22, 49, 50	Carbon Resistor 820 $\Omega$ 1/4 W	ERD14TJ821	6			
<b>B</b>	R13, 14, 17, 18,	29, 30, 35, 36, 99, 100					
		" 47 K $\Omega$ 1/4 W	ERD14TJ473	10			
<b>B</b>	R15, 16, 43, 44	" 330 K $\Omega$ 1/4 W	ERD14TJ334	4			
<b>B</b>	R19, 20, 25, 26,	109, 110, 111, 112					
		" 6.8 K $\Omega$ 1/4 W	ERD14TJ682	8			
<b>B</b>	R23, 24	" 180 $\Omega$ 1/4 W	ERD14TJ181	2			
<b>B</b>	R27, 28, 63, 64, 118	Carbon Resistor 15 K $\Omega$ 1/4 W	ERD14TJ153	5			
<b>B</b>	R31, 32, 37, 38,	81, 82, 85, 86, 93, 94, 304					
		" 5.6 K $\Omega$ 1/4 W	ERD14TJ562	11			

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
B	R33, R34	Carbon Resistor 270 K $\Omega$ 1/4 W	ERD14TJ274	2			
B	R39, 40, 41, 42, 97, 98, 103, 104, 113, 114, 137						
		" 1 K $\Omega$ 1/4 W	ERD14TJ102	11			
B	R53, 54, 73, 74, 308	" 100 $\Omega$ 1/4 W	ERD14TJ101	5			
B	R55, 56, 144, 145	Carbon Resistor 22 K $\Omega$ 1/4 W	ERD14TJ223	4			
B	R57, 58, 59, 60, 135, 136, 139, 140						
		" 220 K $\Omega$ 1/4 W	ERD14TJ224	8			
B	R61, 62, 69, 70, 122, 131, 132	" 2.2 K $\Omega$ 1/4 W	ERD14TJ222	7			
B	R71, 72, 95, 96, 101, 102, 133, 134						
		" 100 K $\Omega$ 1/4 W	ERD14TJ104	8			
B	R75, 76	" 120 K $\Omega$ 1/4 W	ERD14TJ124	2			
B	R77, 78, 129, 130	Carbon Resistor 39 K $\Omega$ 1/4 W	ERD14TJ393	4			
B	R79, 80, 87, 88	" 1.2 K $\Omega$ 1/4 W	ERD14TJ122	4			
B	R83, 84, 107, 108, 203, 204	" 180 K $\Omega$ 1/4 W	ERD14TJ184	6			
B	R91, 92, 105, 106	" 150 K $\Omega$ 1/4 W	ERD14TJ154	4			
B	R115, 116, 310	" 10 K $\Omega$ 1/4 W	ERD14TJ103	3			
B	R117	Solid Resistor 10 $\Omega$ 1/2 W	ERC12GK100	2			
B	R119, 120	Carbon Resistor 560 $\Omega$ 1/4 W	ERD14TJ561	1			
B	R121, 141	Solid Resistor 47 $\Omega$ 1 W	ERC1GK470	2			
B	R124	Carbon Resistor 6.8 $\Omega$ 1/4 W	ERD14TJ6R8	1			
B	R125, 126	" 8.2 K $\Omega$ 1/4 W	ERD14TJ822	2			
B	R139A, 140A, 201, 202	Carbon Resistor 1.8 K $\Omega$ 1/4 W	ERD14TJ182	4			
B	R142, 143	" 8.2 $\Omega$ 1/4 W	ERD14TJ8R2	2			
B	R144, R145, 146	" 10 $\Omega$ 1/4 W	ERD14TJ100	3			
B	R301	Wire-wound Resistor 6.8 $\Omega$ 2 W	ERM2P6R8	1			
B	R302	Solid Resistor 10 $\Omega$ 1/2 W	ERC12GK100	1			
B	R303, 306	Metal-oxide Resistor 150 $\Omega$ 2 W	ERG2PSK151	2			
B	R305	Wire-wound Resistor 220 $\Omega$ 4 W	ERM4P221	1			
B	R309	Solid Resistor 270 $\Omega$ 1/2 W	ERC12GM270	1			

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
		<b><u>VARIABLE RESISTORS</u></b>					
<b>A</b>	VR1, 2	Variable Resistor 100 K $\Omega$ (A)	EVFF1AR23A15	2			★
<b>A</b>	VR3, 4, 11, 12	" 20 K $\Omega$ (A)	EVFF1AR23A24	4			★
<b>A</b>	VR5, 6, 13, 14, 15, 16	Semi-fixed Variable Resistor 100 K $\Omega$ (B)	QVL00AA00B15	6			RS-275US
<b>A</b>	VR7, 8	" 5 K $\Omega$ (B)	QVL00AA00B53	2			RS-736US
<b>A</b>	VR9, 10	" 10 K $\Omega$ (B)	QVL00AA00B14	2			RS-736US
<b>A</b>	VR17, 18	Semi-fixed Variable Resistor 50 K $\Omega$ (B)	QVL00AA00B54	2			RS-736US
<b>A</b>	VR19	Variable Resistor 100 K $\Omega$ (B)	EVJA2AT12A15	1			★
<b>A</b>	VR20, 21	Semi-fixed Resistor 300 $\Omega$	QRE40ASJ301S	2			★
<b>A</b>	VR22, 23	" 800 $\Omega$	QRE40BSJ801S	2			★
		<b><u>CAPACITORS</u></b>					
<b>B</b>	C1, 2, 23, 24	Electrolytic Capacitor 25 V 3.3 $\mu$ F	ECEA25V3R3L	4			
<b>C</b>	C3, 4, 31, 32, 201, 202, 203A, 204A, 205A, 206A						
		Ceramic Capacitor 100 pF	ECCC05101K	10			
<b>B</b>	C5, 6, 15, 16, 17, 18, 57, 58, 59, 60, 63, 64, 65, 66, 105						
		Electrolytic Capacitor 25 V 10 $\mu$ F	ECEA25V10L	15			
<b>B</b>	C7, 8	" 6 V 47 $\mu$ F	ECEA6V47L	2			
<b>B</b>	C9, 10, 49, 50	" 16 V 220 $\mu$ F	ECEA16V220L	4			
<b>B</b>	C11, 12, 41, 42, 47, 48	Electrolytic Capacitor 16 V 10 $\mu$ F	ECEA16V10L	6			
<b>B</b>	C13, 14, 35, 36	" 16 V 100 $\mu$ F	ECEA16V100L	4			
<b>C</b>	C19, 20	Aluminum Capacitor 25 V 0.33 $\mu$ F	ECAG25ER33	2			
<b>B</b>	C21, 22	Electrolytic Capacitor 50 V 1 $\mu$ F	ECECA50V1L	2			
<b>C</b>	C25, 26	Mylar Capacitor 0.039 $\mu$ F	ECQM05393KZB	2			
<b>C</b>	C27, 28	Mylar Capacitor 0.018 $\mu$ F	ECQM05183KZB	2			
<b>C</b>	C29, 30	Aluminum Capacitor 16 V 4.7 $\mu$ F	ECSZ16EF4R7	2			
<b>B</b>	C33, 34, 55, 56, 87, 88	Electrolytic Capacitor 16 V 33 $\mu$ F	ECEA16V33L	6			
<b>C</b>	C37, 38	Ceramic Capacitor 470 pF	ECCC05471K	2			
<b>B</b>	C39, 40	Electrolytic Capacitor 16 V 10 $\mu$ F	ECEA16V10L	2			
<b>C</b>	C43, 44	Mylar Capacitor 0.027 $\mu$ F	ECQM05273KZB	2			

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>C</b>	C45, 46, 79, 80, 100, 101	Mylar Capacitor 1000 pF	ECQM05102KZB	6			
<b>B</b>	C51, 52, 67, 68, 69, 70, 71, 72, 73, 74						
		Electrolytic Capacitor 16 V 3.3 $\mu$ F	ECEA25V3R3L	10			
<b>C</b>	C53, 54	Ceramic Capacitor 22 pF	ECCC05220K	2			
<b>B</b>	C61, 62	Electrolytic Capacitor 25 V 33 $\mu$ F	ECEA25V33L	2			
<b>C</b>	C75, 76	Mylar Capacitor 0.012 $\mu$ F	ECQM05123KZB	2			
<b>C</b>	C77, 78	Styrol Capacitor 820 pF	ECQS1821KZ	2			
<b>B</b>	C81, 213	Electrolytic Capacitor 25 V 470 $\mu$ F	ECEA25V470L	2			
<b>B</b>	C83, 84, 94, 102	" 25 V 220 $\mu$ F	ECEA25V220L	4			
<b>B</b>	C85, 206, 244	" 35 V 1000 $\mu$ F	ECEA35V1000L	3			
<b>C</b>	C89	Styrol Capacitor 1000 pF	ECQS5102J	1			
<b>C</b>	C90	Mylar Capacitor 0.01 $\mu$ F	ECQM05103KZB	1			
<b>C</b>	C91, 92	Styrol Capacitor 220 pF	ECQS1221KZ	2			
<b>C</b>	C93	Mylar Capacitor 0.056 $\mu$ F	ECQM05563KZB	1			
<b>C</b>	C95, 96, 97	Styrol Capacitor 120 pF	ECQS5121K	3			
<b>B</b>	C98, 99	Electrolytic Capacitor 25 V 100 $\mu$ F	ECEA25V100L	2			
<b>C</b>	C103, 104	Ceramic Capacitor 100 pF	ECCC1H101K9	2			
<b>C</b>	C106, 107	Styrol Capacitor 390 pF	ECQS1391KZ	2			
<b>C</b>	C150	" 2700 pF	ECQS1272JZ	1			
<b>B</b>	C204	Electrolytic Capacitor 300 V 2 $\mu$ F	MP300V2 $\mu$	1			RS-790S
<b>B</b>	C205	Electrolytic Capacitor 160 V 100 $\mu$ F	ECEB160V100	1			
<b>B</b>	C211	" 16 V 4400 $\mu$ F	ECEA16V4400N	1			
<b>C</b>	C212	Mylar Capacitor 0.1 $\mu$ F	ECQM05104M2B	1			
<b>B</b>	C213	Electrolytic Capacitor 16 V 470 $\mu$ F	ECEA16V470L	1			
<b>B</b>	C218, 219	" 250 V 4 $\mu$ F	MP250V4 $\mu$	2			★
		<b>COMBINATION PARTS</b>					
<b>C</b>	CR1, 2, 3, 4, 5, 6, 7, 13, 14	CR Combination	QCR0001	9			RS-736US
<b>C</b>	CR8, 9, 10, 11, 12	"	QCR0004	5			★
<b>C</b>	CR203	"	QCR0006	1			★



Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>C</b>	C207, 208, 209	210, 214, 215, 216, 217, 220, 225					
		CR Combination	QCR0005	10			★
		<b><u>TRANSISTORS</u></b>					
<b>A</b>	Tr1, 2, 3, 4, 9, 10, 11, 12	Transistor	2SC644Ⓢ(S.T)	8			RS-270US, 275US
<b>A</b>	Tr5, 6, 13, 14, 15, 16	”	2SC644(ST)	6			”
<b>A</b>	Tr7, 8, 17, 18, 19, 20, 21, 22	”	2SC828	8			”
<b>A</b>	Tr23, 26	”	2SD261	2			RS-275US
<b>A</b>	Tr24, 25	”	2SC881(E,L,F)	2			RS-270US, 275US
<b>A</b>	Tr27	Transistor	2SC1096(K,L,M)	1			★
		<b><u>DIODES &amp; RECTIFIER</u></b>					
<b>A</b>	D1, 2, 3, 4	Diode	0A90Z	4			COMMON
<b>A</b>	D5	Silicon Diode	1S1850	1			RS-275US
<b>A</b>	D6, 7, 8, 9, 11, 12, 13, 14	”	FR206	8			★
<b>A</b>	D10	Rectifier	KC2dp22/1	1			RS-255S, 259S
		<b><u>TRANSFORMERS</u></b>					
<b>A</b>	T1	Oscillator Transformer	QLB0140	1			RS-270US, 275US
<b>A</b>	T2, 3	Headphone Transformer	QLA0349	2			”
<b>A</b>	T4	Power Transformer	QLP0600	1			★
		<b><u>COILS</u></b>					
<b>B</b>	L1, 2	Peaking Coil	QLH2008	2			RS-270US, 736US
<b>B</b>	L3, 4	”	QLH2009	2			RS-736US
<b>B</b>	L5	Erase Head Dummy Coil	QLH9010	1			RS-736S
		<b><u>SWITCHES</u></b>					
<b>A</b>	S1	Slide Switch (MIC Impeadance Selector)	QSS1035	1			RS-254S, 255S, 280S
<b>A</b>	S2	Rotary Switch (Equalizer Selector with S12)	ESRE262F20AP	1			★
<b>A</b>	S3	Lever Switch (Tape Selector)	QST0021S	1			★
<b>A</b>	S4	Lever Switch (Left Monitor Selector)	QST0021S	1			★
<b>A</b>	S5	Lever Switch (Right Monitor Selector)	QST0021S	1			★


**RS-715US**

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>A</b>	S6	Relay Switch (Head Selector RY1)	QSK0223	1			★
<b>A</b>	S7	Push Switch (Record/Playback Selector)	ESB512	1			★
<b>A</b>	S8	Slide Switch (Sound on Sound Switch)	QSS1049	1			★
<b>A</b>	S9	Lever Switch (Power ON/OFF Switch)	QST0024S	1			★
<b>A</b>	S10	Rotary Switch (Voltage Selector)	ESRE116S20CE	1			RS-270US
<b>A</b>	S11	Slide Switch (50/60 Hz Selector)	ESD275	1			★
<b>A</b>	S12	Rotary Switch (Tape Speed Selector)	ESRE262F20AP	1			★
<b>A</b>	S13	Micro Switch (Shut off)	QSM0015	1			RS-280S, 770S
<b>A</b>	S14	Relay Switch (Motor RY2)	QSK0411	1			★
<b>A</b>	S15	Rotary Switch (Auto Reverse)	ESRE123F20A	1			★
<b>A</b>	S16	Push Switch	ESB508	1			★
<b>A</b>	S17	Relay Switch (Reverse RY3)	QSK0412	1			★
<b>A</b>	S18	Relay Switch (Rewind RY4)	QSK0410	1			★
<b>A</b>	S19	Relay Switch (Fast Forward RY5)	QSK0410	1			★
<b>A</b>	S20	Relay Switch (Forward RY6)	QSK0410	1			★
<b>A</b>	S21	Relay Switch (Delay RY7)	QSK0122	1			★
<b>A</b>	S22	Relay Switch (Record RY8)	QSK0411	1			★
<b>A</b>	S23	Push Switch (Tape Tension Selector)	ESB1130DSR	1			★
<b>A</b>	S24,25,26,27, 28,29,30	Micro Switch	QSM0040	8			RS-275US
		<b><u>ELECTRICAL PARTS</u></b>					
<b>B</b>	E1	Record Head	WY451R	1			★
<b>B</b>	E2	Playback Head	WY470R	2			★
<b>B</b>	E3	Erase Head	WY560R	1			★
<b>B</b>	E4	Jack Board Assembly	QEJ0157	1			★
<b>B</b>	E5	AC Power Cord	QFC1022	1			RS-736US
<b>C</b>	E6	Cord Bushing	QTD1126A	1			COMMON
<b>A</b>	E7	Fuse 2.0A	XBA1E20NR3	1			"
<b>A</b>	E8	Fuse 1.0A	XBA1E10NR3	1			"
<b>C</b>	E9	Fuse Holder	QTF1033	1			★
<b>A</b>	E10	Volume Knob	QGT1123	1			★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>A</b>	E11	Pilot Lamp	XAMQ7S	2			★
<b>B</b>	E12	Jack	QJA0227	2			RS-736US
<b>B</b>	E13	Headphone Jack	QJA0228	1			RS-270US
<b>A</b>	E14	VU Meter	QSL0063	2			RS-736US
<b>B</b>	E15	9 P Connector Plug	QEE1120	1			★
<b>B</b>	E16	9 P Connector Plug	QEE1122	1			★
<b>B</b>	E17	9 P Connector Plug	QEE1124	1			★
<b>B</b>	E18	15 P Connector Plug	QEE1116	1			★
<b>B</b>	E19	15 P Connector Plug	QEE1118	1			★
<b>B</b>	E20	9 P Connector Socket	QEE1121	1			★
<b>B</b>	E21	9 P Connector Socket	QEE1123	1			★
<b>B</b>	E22	9 P Connector Socket	QEE1125	1			★
<b>B</b>	E23	15 P Connector Socket	QEE1117	1			★
<b>B</b>	E24	15 P Connector Socket	QEE1119	1			★
<b>C</b>	E25	2 P Terminal Board	QJT2003	1			RS-736US
<b>C</b>	E26	5 P Terminal Board	QJT5005	3			RS-270US
<b>C</b>	E27	6 P Terminal Board	QJT6006	1			★
<b>B</b>	E28	12 Pin Plug	QJP0958	1			RS-275US
<b>B</b>	E29	12 Pin Socket	QJS0508H	1			"
<b>B</b>	E30	4 P Relay Socket	QJS0735	6			★
<b>B</b>	E31	1 P Relay Socket	QJS0737	1			★
		<b><u>CABINET PARTS</u></b>					
<b>B</b>	G1	Body Case Assembly	QYJ1249	1			★
<b>B</b>	G2	Front Panel Assembly	QYP0284S	1			★ 
<b>B</b>	G3	Panel Assembly	QYP0285	1			★
<b>C</b>	G4	Reel Table Accessory	QGK1862	2			★
<b>B</b>	G5	Head Cover Assembly	QYR0125	1			★
<b>C</b>	G6	Front Cover	QBJ1754	1			★
<b>A</b>	G7	Volume Control Knob-A Assembly	QYT219S	3			★ 

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Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
<b>A</b>	G8	Volume Control Knob-B Assembly	QYT0220S	3			★ (ISO)
<b>A</b>	G9	Selector Knob Assembly	QYT0221S	2			★ (ISO)
<b>A</b>	G10	Pause Button	QGO4076	1			★
<b>A</b>	G11	Fast Rewind Button	QGO4075	1			★
<b>A</b>	G12	Reverse Button	QGO4074	1			★
<b>A</b>	G13	Stop Button	QGO4073	1			★
<b>A</b>	G14	Forward Button	QGO4080	1			★
<b>A</b>	G15	Fast Forward Button	QGO4081	1			★
<b>C</b>	G16	Foot	QKA1053	4			★
<b>C</b>	G17	Back Board	QKS5064	1			★
<b>A</b>	G18	Record Select Button	QGO4078	2			★
<b>A</b>	G19	Tape tension Button	QGO4077	1			★
<b>A</b>	G20	Record Button	QGO4079	1			★
<b>C</b>	G21	Screw	XSNQ0005	2			★
<b>C</b>	G22	Screw $\oplus N4 \times 25$	XSN4+25FNCS	10			COMMON (ISO)
<b>C</b>	G23	Screw $\oplus N4 \times 30$	XSN4+30S	4			" (ISO)
<b>C</b>	G24	Screw $\oplus N4 \times 14$	XSN4+14FCS	2			" (ISO)
<b>C</b>	G25	Screw $\oplus N3 \times 8$	XSN3+8FZS	6			" (ISO)
<b>C</b>	G26	Screw $\oplus N3 \times 8$	XYN3+C8S	2			COMMON (ISO)
<b>C</b>	G27	Screw $\oplus N3 \times 14$	XSN3+14FCS	2			" (ISO)
<b>C</b>	G28	Screw $\oplus N4 \times 10$	XSN4+10FZS	4			" (ISO)
<b>C</b>	G29	Washer	QWQ1131	10			★
<b>C</b>	G30	Mount Washer	QWQ1132	4			★
<b>C</b>	G31	Accessory Washer	QBJ3205	4			★
<b>C</b>	G32	Washer	QWQ1143	2			★
<b>C</b>	G33	Jack Washer	QBJ3149	3			RS-736US
<b>A</b>	G34	Selector Knob	QGT3034S	4			★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
		<b><u>ACCESSORIES</u></b>					
<b>B</b>	A1	7" Empty Reel	QFR76CNZ	1			COMMON
<b>A</b>	A2	Connection Cord-G	QEB0060P	2			RS-262US. 275US
<b>B</b>	A3	Head Cleaning Ribbon	QFQ1015	1			RS-270US
<b>B</b>	A4	Sensing Tape	QFS0004	1			COMMON
<b>B</b>	A5	"	QFS2	1			"
<b>A</b>	A6	Fuse	XBA1E20NR3	2			COMMON
<b>B</b>	A7	Dust Cover	QFD0142A	1			★
<b>B</b>	A8	Plug Adaptor	QJP0603S	1			COMMON 
<b>C</b>	A9	Instruction Book	QQT1533	1			★
		<b><u>PACKINGS</u></b>					
<b>C</b>	P1	Inner Packing	QPN2449	1			★
<b>C</b>	P2	Inner Cushion-A	QPN2393	1			★
<b>C</b>	P3	Inner Cushion-B	QPN2394	1			★
<b>C</b>	P4	Spacer	QPN2392	2			★
<b>C</b>	P5	Polyethylene Bag	XZB80X100A08	1			★
<b>C</b>	P6	Accessory Box	QPW1130	1			RS-280S
<b>C</b>	P7	Polyethylene Sheet	QPQ1052	1			★

### RECOMMENDED STOCK OF REPLACEMENT PARTS

Rank of Part	Estimated Selling Q'ty of Tape Recorder Set					
	Less than 50	100	300	500	1,000	2,000
<b>A</b> rank Parts	2	5	15	20	40	80
<b>B</b> rank Parts	1	2	5	10	20	40
<b>C</b> rank Parts	0	1	3	5	10	20